

Cell Cycle

Cells divide to increase their numbers through a process of mitosis, which results in two daughter cells with identical sets of chromosomes.

As you grow from an infant to an adult, you pass through different stages of your life cycle.

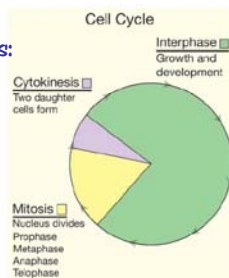
- Similarly, a cell passes through different stages of its life.
- The life cycle of a cell is called the cell cycle.



The cell cycle is the period of time from the beginning of one cell division to the beginning of the next.

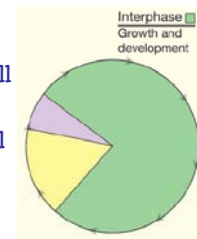
It consists of three stages:

1. interphase
2. mitosis
3. cytokinesis



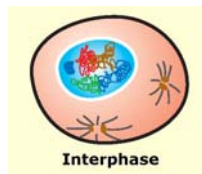
The longest stage of the cell cycle is called interphase.

- Interphase is the stage that occurs in between cell divisions.
- During interphase, the cell grows and develops and performs its functions.



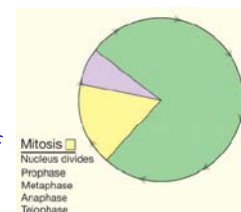
Toward the end of interphase (just before the cell begins to divide), the amount of DNA doubles.

- Organelles of the cytoplasm (like mitochondria) also double in number.

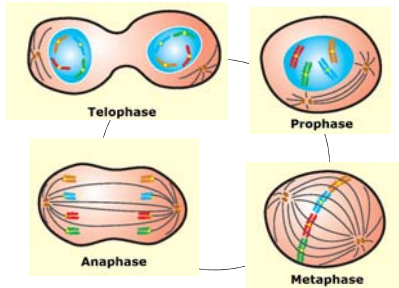


The second stage of the cell cycle is called mitosis (splitting of the nucleus).

- Mitosis is the process in cell division where the nucleus divides into two nuclei, each with an identical set of chromosomes.
- Mitosis is divided into four phases: prophase, metaphase, anaphase, and telophase.

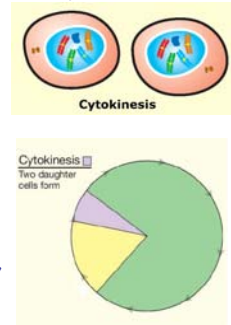


Mitosis

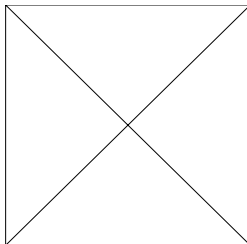


The shortest stage of the cell cycle is called cytokinesis (division of the cytoplasm).

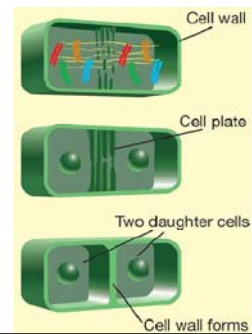
- In cytokinesis, the cytoplasm and its organelles divide into two daughter cells.
 - Each daughter cell contains a nucleus with an identical set of chromosomes.
- The two daughter cells then start their own cycles, beginning again with the interphase stage.



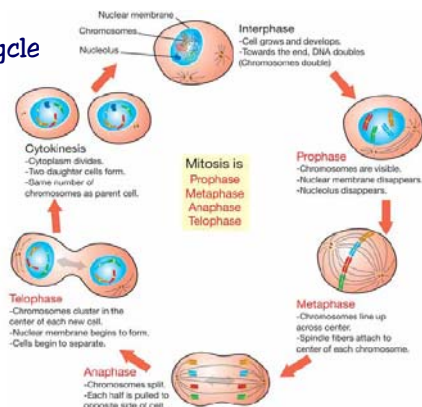
Mitosis Video Clip



Cytokinesis in plant cells is different because a cell plate forms.



Cell Cycle



Mitosis

